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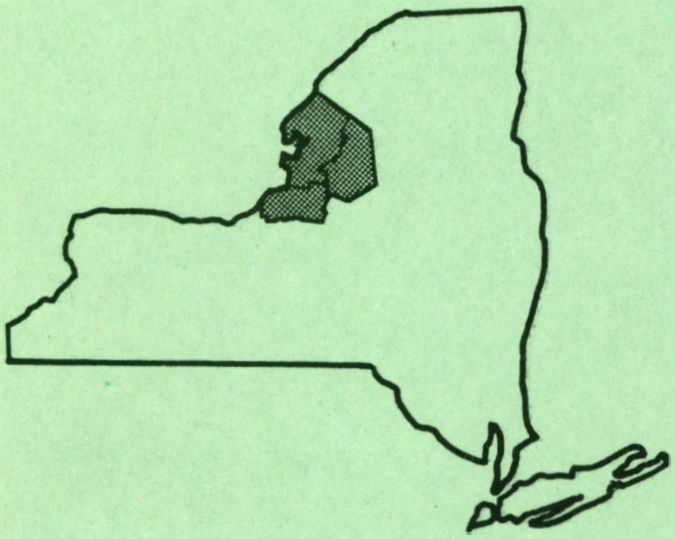
Forest Statistics for

NEW YORK

Forest District No. 6



Forest Statistics Series:
New York No. 7

Northeastern Forest Experiment Station

Upper Darby, Pennsylvania
Ralph W. Marquis, Director

1954

United States Department of Agriculture • Forest Service

FOREWORD

This is the seventh in a series of reports about forest areas and timber volumes in the State of New York. These reports are products of the forest survey of the Northeast, carried on by the Northeastern Forest Experiment Station as part of the nationwide forest survey being made by the Forest Service, U. S. Department of Agriculture.

A similar report has been prepared for each of the other forest districts in the State of New York. The primary purposes of these reports is to provide basic forest statistics for the administrative use of the New York Department of Conservation.

The New York Department of Conservation aided the Northeastern Station greatly in the forest survey of the State. The Department not only provided the aerial photographs used in the survey, but also cooperated in many other phases of the work.

Field work in Forest District No. 6 was supervised by N. B. Griswold. The statistical procedures for obtaining field-inventory data were developed by C. Allen Bickford. Computations were made under the supervision of Roland H. Ferguson.

Ralph W. Marquis

Ralph W. Marquis
Director

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FOREST STATISTICS FOR NEW YORK FOREST DISTRICT NO. 6

Prepared by

Division of Forest Economics

Northeastern Forest Experiment Station
Forest Service, U.S. Dept. Agriculture

GENERAL

Forest District No. 6 lies in north-central New York. Bounded on the west by Lake Ontario, it extends eastward into the edge of the Adirondacks. From Oneida Lake on the south, the District reaches as far north as the Thousand Islands area on the St. Lawrence River. It includes three counties: Jefferson, Lewis, and Oswego.

The topography is level to gently rolling with the exception of the relatively small area of rough mountainous land in the Adirondack Park.[1] About 86 percent of the forest land drains into Lake Ontario and the remainder into the St. Lawrence River.

The District is predominantly agricultural. Dairy products, tree fruits, grapes, and vegetables are the principal products. Industrial activity is centered in the pulp mills.

[1] THE ADIRONDACK PARK AS SHOWN ON MAPS OF NEW YORK STATE INCLUDES BOTH STATE AND PRIVATE LANDS.

Forest Area

The total land area amounts to nearly 2,275,000 acres. The forest-land area is 973,000 acres. About 43,000 acres of the total forest land is noncommercial. A little more than 10,000 acres of this are reserved from timber cutting in the State Forest Preserve[2] and State Parks[3]. About 26,000 acres are in a military reservation. The remaining 7,000 acres are nonproductive.

The commercial forest land amounts to 930,000 acres. Lewis County, the most heavily forested, contains slightly more than half of this acreage.

Ownership

About 78 percent of the commercial forest land is privately owned. Farmers own one-third of this and other private owners hold two-thirds.

Of the forest land in public ownership, the State of New York holds about 69 percent in State Forests[4] and Game-Management Areas. One-fourth is held by the U. S. Army. The rest is in county and municipal ownerships.

Forest Types

The commercial forest land is dominated by hardwood types. The most extensive type is sugar maple-beech-yellow birch, which occupies a little more than half the forest area. Nearly a fifth of the forest land is in the aspen type. Softwood types occupy only 16 percent of the commercial forest land. Half of this area is in spruce-fir types.

Forest Stands

Ten percent of the forest land carries sawtimber stands of more than 5,000 board feet per acre. This area contains more than a third of the total board-foot volume.

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[2] THE STATE FOREST PRESERVE COMPRISES LAND OWNED BY THE STATE IN THE 12 FOREST PRESERVE COUNTIES IN THE ADIRONDACKS AS DEFINED BY LAW.

[3] RECREATIONAL AREAS OUTSIDE THE ADIRONDACK PARK.

[4] OUTSIDE THE LIMITS OF THE ADIRONDACK AND CATSKILL PARKS AND NOT SUBJECT TO THE CONSTITUTIONAL PROHIBITION AGAINST CUTTING WHICH APPLIES TO THE STATE FOREST PRESERVE LANDS.

Sawtimber stands of 1,500-5,000 board feet per acre occupy 37 percent of the area and contain more than half the sawtimber volume.

Poletimber stands are found on 28 percent of the commercial forest land; they carry only a fifth of the total cubic volume. Seedling-and-sapling stands and other areas, bearing little or no growing stock, occupy 25 percent of the commercial forest land.

Timber Volume

The commercial forests contain about 2.4 billion board feet (log scale, International $\frac{1}{4}$-inch rule) of live sawtimber. Hardwood species account for 79 percent of the total volume. Sugar maple, beech, and yellow birch make up about 48 percent. The dominant softwood species are spruce and hemlock. Together they represent nearly 18 percent of the sawtimber.

The growing stock amounts to 860 million cubic feet. Of this, 61 percent is in sawtimber trees and 39 percent is in poletimber trees. The total cubic volume is equivalent to 10.7 million rough standard cords.

Blowdown Damage

The survey was completed before the severe windstorm of November 25, 1950. The storm changed the stand-size distribution, the volume of sawtimber, and the growing stock. Estimates of blowdown damage in Lewis County have been prepared from basic data provided by the New York State College of Forestry. However, the amount of damage has not been deducted from the accompanying tables because there is no satisfactory way of distributing the loss by forest type or species.

In Lewis County there was some windthrown timber on 116,700 acres of commercial forest land (24 percent of the total commercial forest land in this county.) Of the total blowdown area, about 93,800 acres had only light wind damage, not enough to change the stand-size class of the stand. Heavier blowdown occurred on 22,900 acres, of which 22,000 acres were in sawtimber stands and 900 acres in poletimber stands. Of the 22,000 acres in sawtimber stands, 11,400 acres were changed to poletimber and seedling-and-sapling stands.

About 86 million board feet (about 7 percent of the total board-foot volume) of sawtimber was blown down in Lewis County. The volume of windthrown sawtimber in sawtimber stands amounts to 82.6 million board feet. The volume in sawtimber stands is further reduced by the amount of standing timber on the 11,400 acres which changed from sawtimber stand-size classes to poletimber and seedling-and-sapling stands. Of the total growing stock, 26.4 million cubic feet (3 percent) were blown down.

NEW YORK FOREST DISTRICT NO. 6

Table 1.--Land area by major classes, 1950

Class of land[1]	Area	
	Acres	Percent
Forest land:		
Commercial	930,000	41
Noncommercial[2]	42,800	2
All forest land	972,800	43
Nonforest land	1,301,800	57
All land[3]	2,274,600	100

[1] See Appendix for definitions.

[2] Includes 26,000 acres in a military reservation, and 9,520.23 acres in the State Forest Preserve reserved from timber cutting. State ownership figures are as of September 30, 1952.

[3] Census of Agriculture, 1950. Water areas of 1 to 40 acres are included in the estimate of nonforest acreage.

NEW YORK FOREST DISTRICT NO. 6

Table 2.--Land area and commercial forest land area by county, 1950

County	Land area	Commercial forest land area	
	Acres	Acres	Percent
Jefferson	827,500	167,300	20
Lewis	827,500	477,600	58
Oswego	619,600	285,100	46
All	2,274,600	930,000	41

NEW YORK FOREST DISTRICT NO. 6

Table 3.--Commercial forest-land area by ownership, 1950

Ownership class	Acreage held	
	Acres	Percent
Private:		
Farm forest land[1]	244,400	26
Other private	484,200	52
Total private	728,600	78
Public:		
State[2]	139,300	15
Federal[3]	51,400	6
County	8,100	1
Municipal	2,600	(4/)
Total public	201,400	22
All ownerships	930,000	100

[1]Census of Agriculture, 1950.

[2]Includes commercial forest land administered by the New York State Conservation Department as State Forests and Game Management Areas, amounting to 110,059.47 and 31,138.79 acres respectively. All State ownership figures are as of September 30, 1952.

[3]U. S. Army.

[4]Less than 1 percent.

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Table 4.--Commercial forest-land area by forest type, 1950

Forest type	Area	
	Acres	Percent
Spruce-fir types	69,600	8
Other softwood types	76,300	8
Sugar maple-beech-yellow birch	471,800	51
Aspen-gray birch	159,400	17
Ash-elm-maple	75,400	8
Hardwood-spruce-fir	52,700	6
Other hardwood types	24,800	2
All types	930,000	100

NEW YORK FOREST DISTRICT NO. 6

Table 5.--Commercial forest-land area by forest-type group and stand-size class, 1950

Forest-type group	Saw-timber stands	Pole-timber stands	Seedling-and-sapling stands and other areas	Total area
	Acres	Acres	Acres	Acres
Spruce-fir types	24,000	30,600	15,000	69,600
Other softwood types	29,700	25,500	21,100	76,300
Sugar maple-beech-yellow birch	332,800	75,800	63,200	471,800
Aspen-gray birch	(1/)	53,600	105,800	159,400
Ash-elm-maple	17,200	44,200	14,000	75,400
Hardwood-spruce-fir	27,000	17,500	8,200	52,700
Other hardwood types	4,600	11,200	9,000	24,800
All types	435,300	258,400	236,300	930,000
Percent	47	28	25	100

[1]No field plots fell in this stand-size class.

Table 6.--Commercial forest-land area by stand-size class and watershed, 1950

Stand-size class	Watershed		Total
	Lake Ontario tributaries[1]	St. Lawrence River	
	Acres	Acres	Acres
Sawtimber stands:			
More than 5,000 board feet per acre	77,700	14,700	92,400
1,500 to 5,000 board feet per acre	295,500	47,400	342,900
Poletimber stands:			
More than 600 cubic feet per acre	109,500	20,500	130,000
200 to 600 cubic feet per acre	116,800	11,600	128,400
Other[2]	197,100	39,200	236,300
Total	796,600	133,400	930,000
Percent	86	14	100

[1]Includes 9,000 acres of forest land in the Mohawk River watershed.

[2]Includes seedling-and-sapling stands (201,100 acres) and nonstocked areas (35,200 acres).

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Table 7.--Net volume of live timber on commercial forest land by species, 1950

Species	Growing stock[1]		Sawtimber[2]
	Thousand cu.ft.	Equivalent in cords	Thousand bd.ft.
Spruce	69,300	866,300	234,300
Hemlock	74,400	930,000	185,000
White pine	18,200	227,500	42,800
Fir	25,200	315,000	29,000
Other softwoods	5,200	65,000	2,900
All softwoods	192,300	2,403,800	494,000
Sugar maple	135,300	1,691,200	440,200
Red maple	158,700	1,983,800	387,600
Beech	93,400	1,167,500	348,900
Yellow birch	107,200	1,340,000	341,900
Black cherry	47,000	587,500	170,300
Elm	29,600	370,000	54,800
Basswood	16,600	207,500	51,800
Ash	25,700	321,200	40,300
Other hardwoods	54,200	677,500	33,400
All hardwoods	667,700	8,346,200	1,869,200
All species[3]	860,000	10,750,000	2,363,200

[1]Includes sawtimber. Cord equivalent in rough standard cords is assumed to average 80 cubic feet of peeled wood.

[2]Log scale, International ¼-inch rule.

[3]Excludes the net volume of cull trees--15,000,000 cubic feet.

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Table 8.--Net volume of live timber on commercial forest land by diameter class, 1950

Diameter class[1] (in inches at breast height)	Growing stock	Saw-timber
	Thousand cu.ft.	Thousand bd.ft.
Softwoods:		
6	32,600	--
8	41,600	--
10	32,000	116,200
12	33,500	136,300
14	21,300	93,700
16	17,800	83,100
18	8,200	37,900
20 +	5,300	26,800
All softwoods	192,300	494,000
Hardwoods:		
6	70,600	--
8	84,200	--
10	107,200	--
12	91,900	356,500
14	80,400	350,900
16	70,300	311,100
18	61,300	309,000
20	37,400	191,700
22	31,000	164,200
24	18,100	98,000
26	7,800	41,600
28 +	7,500	46,200
All hardwoods	667,700	1,869,200
Total	860,000	2,363,200

[1]The midpoint of each 2-inch diameter class is indicated.

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Table 9.--Net volume of live timber on commercial forest land by forest type, 1950

Forest type	Growing stock		Saw-timber
	Thousand cu.ft.	Equivalent in cords	Thousand bd.ft.
Spruce-fir-hardwood	57,200	715,000	155,000
Hemlock	40,500	506,300	111,600
Spruce-fir	36,900	461,200	96,700
Other softwood types	16,300	203,700	17,200
Sugar maple-yellow birch-beech	534,700	6,683,800	1,663,600
Hardwood-spruce-fir	54,100	676,200	150,100
Ash-elm-maple	60,100	751,200	77,600
Aspen	44,100	551,300	39,600
Oak-white pine	4,800	60,000	22,600
Other hardwood types	11,300	141,300	29,200
All types	860,000	10,750,000	2,363,200

Table 10.--Average net volume of live timber per acre of commercial forest land, by stand-size class, 1950

Stand-size class (and acreage of each class)	Growing stock	Sawtimber
	Cubic feet	Board feet
Sawtimber stands:		
More than 5,000 bd.ft. per acre (92,400 acres)	2,140	8,950
1,500 to 5,000 bd.ft. per acre (342,900 acres)	1,300	3,740
Poletimber stands:		
More than 600 cu.ft. per acre (130,000 acres)	960	1,190
200 to 600 cu.ft. per acre (128,400 acres)	400	330
Other[1] (236,300 acres)	180	230
Average, all classes[2] (930,000 acres)	930	2,540

[1]Includes seedling-and-sapling stands and non-stocked areas.

[2]Hardwoods constitute 78 percent of the total volume. The average cubic volume in all stand-size classes is equivalent to 11.6 cords per acre.

APPENDIX

DEFINITIONS OF TERMS

Forest Areas

Forest-land area.--Includes (a) lands that are at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or of exerting influence on the climate or on the water regime; (b) land from which the trees described in (a) have been removed to less than 10 percent stocking and which has not been developed for other use; and (c) afforested areas. (Forest tracts of less than 1 acre, isolated strips of timber less than 120 feet wide, and abandoned fields and pastures not yet 10 percent stocked are excluded.)

Commercial forest-land area.--Forest land that is (a) producing, or physically capable of producing, usable crops of wood (usually sawtimber), (b) economically available now or prospectively, and (c) not withdrawn from timber utilization.

Noncommercial forest-land area.--Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land, and (b) incapable of yielding usable wood products (usually sawtimber) because of adverse site conditions.

Forest Types

Forest types are classified according to the species or species group that accounts for the major portion of the stand in terms of cubic feet in sawtimber and poletimber stands, or the number of stems in seedling-and-sapling stands.

Stand-Size Classes

Sawtimber stands.--Stands with sawtimber trees having a minimum net volume per acre of 1,500 board feet, International $\frac{1}{4}$-inch rule.

Poletimber stands.--Stands failing to meet the sawtimber stand specification, but at least 10 percent stocked with poletimber and larger (5.0 inches and larger) trees, and with at least half the minimum stocking in poletimber trees. (Poletimber stands carry at least 200 cubic feet per acre.)

Seedling-and-sapling stands.--Stands not qualifying as either sawtimber or poletimber stands, but having at least 10 percent stocking of trees of commercial species and with at least half the minimum stocking in seedling-and-sapling trees.

Other areas.--Forest-land areas not qualifying as sawtimber, poletimber, or seedling-and-sapling stands. (Includes nonstocked areas.)

Tree Classes

Sawtimber trees.--Trees of commercial species that contain at least one merchantable sawlog as defined by regional practice and that are of the following minimum diameters at breast height (d.b.h.): Softwoods 9.0 inches and hardwoods 11.0 inches. (All butt sawlogs are considered merchantable. Where the butt is defective, upper sawlogs are considered merchantable if they account--in terms of aggregate net volume--for 50 percent or more of the gross volume below the top of the uppermost sawlog. Softwood sawlogs are at least 6.0 inches in diameter inside bark at small end; 8 to 16 feet in length; sound and straight enough to be manufactured into standard lumber. The smaller logs are generally free of surface defects other than small tight knots. Hardwood sawlogs are at least 8.0 inches in diameter inside bark at small end; 8 to 16 feet in length; suitable for sawing into standard lumber, construction timbers, or ties.)

Poletimber trees.--Trees 5.0 inches d.b.h. and larger of commercial species that do not meet the specifications for sawtimber trees but do meet regional specifications of species, soundness, and freedom from defect. (These are the trees that are straight and clear enough to make sawtimber trees eventually.)

Seedling-and-sapling trees.--Trees of commercial species less than 5.0 inches in diameter at breast height.

Cull trees.--Live trees of sawtimber or poletimber size that are unmerchantable for sawlogs now or prospectively because of defect, rot, or species.

Timber Volume

Growing stock.--Net volume, in cubic feet, of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) inside bark.

This volume is also given in rough standard cords (bark included). Cord volume is derived from growing stock by applying a factor of 80 cubic feet per cord.

Live sawtimber volume.--Net volume in board feet, International $\frac{1}{4}$-inch rule, of live sawtimber trees.

FOREST-SURVEY METHODS

These forest statistics are based on information gathered from aerial photographs and from sample plots examined on the ground.

First, photo-interpretation plots were marked off on the aerial photographs. These plots were distributed uniformly by mechanical means over photographs of the entire district. Trained photo-interpreters then classified each photo-plot as either forest or nonforest. Forest plots were classified further according to stand-size and forest type.

Field crews inspected some of the photo-plots on the ground. Enough plots were selected at random so as to attain a specified level of statistical accuracy. Species and volume data were collected on these ground plots; and the photo classification of stand size and forest type was verified or--if necessary--changed.

The survey was designed for maximum efficiency in estimating total cubic volume to meet the national standards of accuracy.

ACCURACY OF THE ESTIMATES

The estimates in this report may contain two kinds of error. First, photo-interpreters may make mistakes of judgment and fieldmen may make mistakes in measuring or record-

ing. There is no practical way of finding out just how often such errors occur. But they are kept to a minimum by closely checking all phases of the work.

The second kind of error is associated with sampling procedures. The size of this sampling error can be measured. In Forest District No. 6 the probabilities are 2 out of 3 that the actual forest area is within ± 3.3 percent of the estimated forest area, that the actual cubic-foot volume is within ± 4.4 percent of the estimated cubic-foot volume, and that the actual board-foot volume is within ± 6.7 percent of the estimated board-foot volume. This does not include any mistakes in measurement or classification.

These percentages show that the area estimates are more accurate than the volume estimates, and that the cubic-foot estimates are more accurate than the board-foot estimates.

In each of the tables, the total figures are more accurate than the subtotals. The subtotals are more accurate than any of the individual figures. Figures that are small in relation to totals are subject to larger sampling errors.

SPECIES TALLIED

The various commercial tree species tallied in New York Forest District No. 6 are listed below. Approved common names[5] are shown in parentheses if these differ from the brief name used in the tables. Other tree species may occur in the area, but unless they were tallied on the field plots they were not included in the following list.

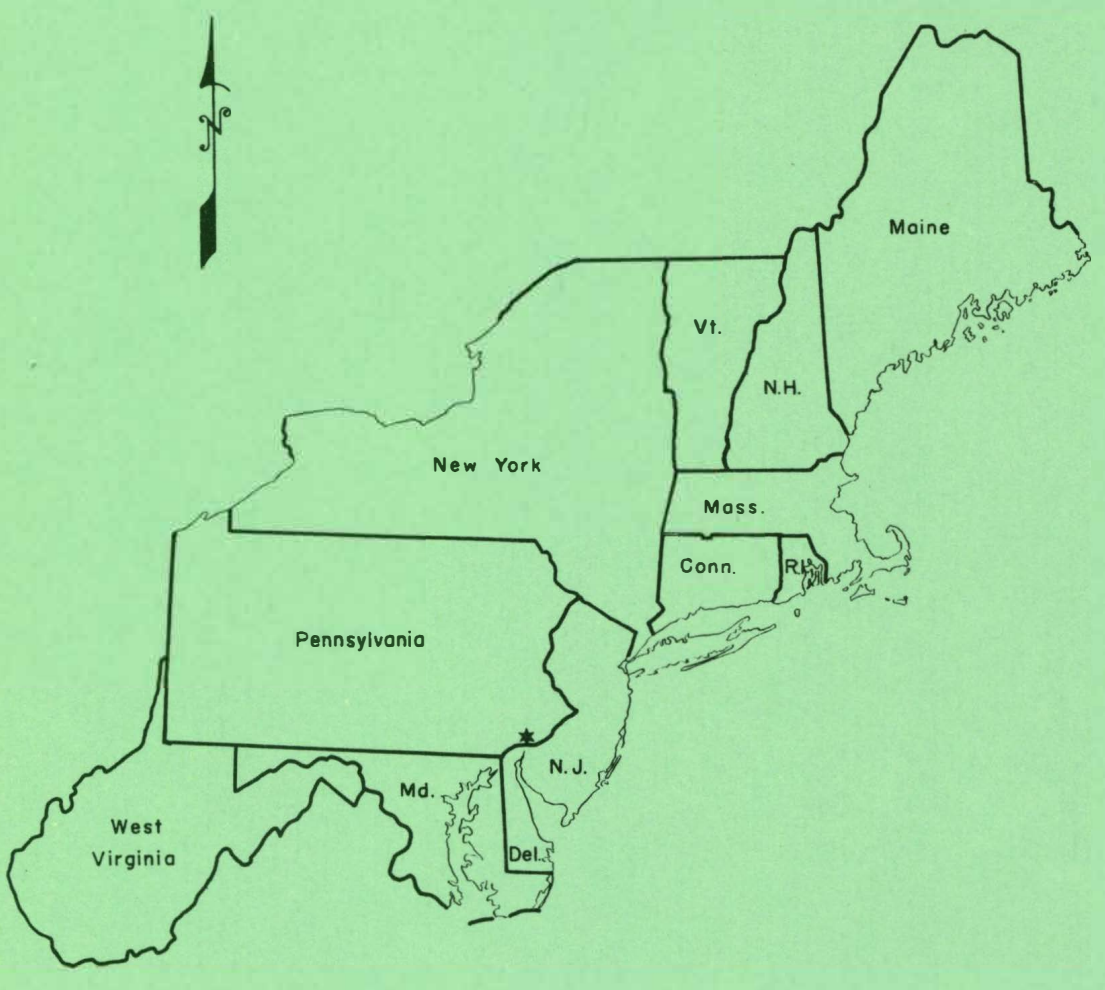
Softwoods

Spruce (Red spruce)	- Picea rubens
Hemlock (Eastern hemlock)	- Tsuga canadensis
White pine (Eastern white pine)	- Pinus strobus
Fir (Balsam fir)	- Abies balsamea
Other softwoods	
(Northern white-cedar)	- Thuja occidentalis
(Tamarack)	- Larix laricina

[5] LITTLE, ELBERT L., JR. CHECK LIST OF NATIVE AND NATURALIZED TREES OF THE UNITED STATES (INCLUDING ALASKA). U. S. DEPT. AGR., AGR. HANDB. 41. 472 PP. 1953.

Hardwoods

Sugar maple	- Acer saccharum
Red maple	- Acer rubrum
Beech (American beech)	- Fagus grandifolia
Yellow birch (Yellow birch)	- Betula alleghaniensis
(Sweet birch)	- Betula lenta
Black cherry	- Prunus serotina
Elm	- Ulmus species
Basswood (American basswood)	- Tilia americana
Ash	- Fraxinus species
Other hardwood	
(Northern red oak)	- Quercus rubra
(White oak)	- Quercus alba
(Bigtooth aspen)	- Populus grandidentata
(Quaking aspen)	- Populus tremuloides
(Butternut)	- Juglans cinerea



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